Agenda Item No. 5

METROPOLITAN TRANSPORTATION COMMISSION

Joseph P. Bort MetroCenter
101 Eighth Street
Oakland, CA 94607-4700
Tel: 510.464.7700
TDD/TTY: 510.464.7769
Fax: 510.464.7848

Memorandum

TO: Operations Committee DATE: September 4, 2009

FR: Deputy Executive Director, Policy W.I.: 1236

RE: Bay Area Ramp Metering: Status Report

As part of the previous Transportation 2030 Plan, the Commission allocated $55 million over the life of the 25-year plan to accelerate the implementation of a regional freeway system management program. From that initial investment beginning in 2004, and with support from Caltrans and the SHOPP, steady progress has been made in deploying projects that have resulted in demonstrated congestion relief for commuters. This status report is intended to update the Commission on the primary element of the Freeway Performance Initiative: ramp metering.

STATUS

In 2004, meters were active on 210 (18%) of the Bay Area's freeway on-ramps, with the largest concentration in Santa Clara County. Beginning with the US-101 corridor in San Mateo County in early 2007, there have been six new ramp metering projects, activating meters at 68 additional on-ramps.

In the next few months, and after many years of discussion, meters at 22 on-ramps will be activated during the evening peak period on southbound Hwy 101 between Palo Alto and San Jose. By the end of this year, metering should also be activated at six on-ramps on southbound I-880 between Hwy 237 and US-101. Three ARRA-funded ramp metering projects are now being designed, with construction scheduled to begin in Spring 2010. These projects will add 24 more ramps to the system.

EFFECTS OF RAMP METERING

Each metering plan was developed in close partnership between Caltrans and the corresponding CMA, and in collaboration with each city on the corridor. MTC staff has been actively involved in the process. Comprehensive before & after traffic studies were conducted in conjunction with each deployment, some of which were funded through MTC's Traffic Engineering Technical Assistance Program. Data for both the freeway and key local arterials were collected.

Graphical representations of freeway travel times before and after the deployment of metering are shown in the Attachment. Without exception, every project has had a demonstrated reduction in travel times and a decrease in the overall duration of traffic

congestion. Some corridors have experienced very dramatic improvements. For example, after the activation of meters on eastbound I-580 through Pleasanton and Livermore in 2008, travel times through the corridor during the evening peak period were reduced by 33%. Increases in freeway throughput and a reduction in peak period accidents have also been documented on I-580. All corridors have experienced improved day-to-day reliability of travel times.

Equally notable is that the improved freeway performance has not been at the expense of local streets leading to the freeway on-ramps. This is due in large part to the current operational practice of installing queue detection to automatically adjust the metering rates when waiting vehicles fill an entire on-ramp, as well as the collaborative effort among the partner agencies that goes into each ramp metering deployment. The one exception was on Hwy 87 in San Jose, where there were initial impacts to Capitol Expressway that have since been corrected.

Effects of Ramp Metering Deployments since 2007

		Maximum Travel Time reduction	Peak Period Duration reduction	Impact on local streets
SM-101	SB; Hillsdale to University	-19 min.	-1 hr	No
Ala-580	EB; Foothill to Greenville	-11 min.	-2 hr	No
SM-280	NB; Sneath to Serramonte	-3 min.	-1 hr	No
SCl-85	SB; Almaden to Cottle	-4 min.	-1 hr	No
SCl-87	NB; Rte 85 to Skyport	-4 min.	-2 hr	Temporary
SCL-87	SB; Charcot to Santa Teresa	-9 min.	-1 hr	No
Ala-580	WB; I-205 to Foothill	-7 min.	-1 hr	No

THE ROAD AHEAD

With the activation of the ramp meters described in the "Status" section above, approximately 30% of Bay Area freeway on-ramp meters will be operational. Although significant progress has been made, clearly much more needs to be done to complete the metering infrastructure needed to achieve a fully managed freeway system. The recently adopted Transportation 2035 Plan includes a $1.6 billion investment under the Freeway Performance Initiative to complete the region's Traffic Operations System, of which metering is a large component. Given the great success achieved with recent deployments, and the ability to deliver these projects comparatively quickly, the staff proposal for programming of the next six years of federal funds includes a sizeable investment in new ramp projects, targeted at some of the most congested corridors in the region. These projects would meter about 170 additional on-ramps, and bring us up to 44% of Bay Area freeway ramps with operational meters.

Ann Flemer

AF/JF

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